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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Zhengfu Han

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MINNEAPOLIS, MN 55402-3244

EXAMINER

LEUNG, CHRISTINA Y

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,224	Applicant(s) HAN ET AL.	
	Examiner Christina Y. Leung	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claim 9** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites “said optical connection” in lines 1-2 of the claim. There is insufficient antecedent basis for this limitation in the claim because claim 4 on which claim 9 depends does not currently recite “an optical connection.”

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Harasawa et al.** (US 5,615,290 A) in view of **Chang et al.** (US 6,111,673 A)

Regarding **claim 1**, Harasawa et al. disclose a method of addressing in a network which includes at least three nodes (i.e., nodes A-C) with a star-configuration (Figure 8), the method comprising steps of:

sending photon signals having different wavelengths from each node to other nodes, wherein each of the photon signals regards signal source wavelength as an addressing badge, the

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addressing badge is made up of a part is determined by the wavelength of the photon signal which the node sends; and

determining, by each node, where the photon signals come from by using the addressing badges of the photon signals (column 7, lines 25-40).

Examiner respectfully notes that the recitation “quantum network” in claim 1 has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Examiner notes that Applicant’s specification (e.g., page 3, line 19) and dependent claim 3, also discloses that “photon signal” such as recited in the claims may comprise a classical optical signal and not a quantum state signal.

Further regarding claim 1, Harasawa et al. do not specifically disclose appointing each node an address serial number and that the addressing badge includes another part determined by the address serial number of the node. However, Chang et al. teach a system that is related to the one described by Harasawa et al. including a network of nodes in a star configuration (Figures 2 and 5). Chang et al. further teach addressing badges including a part determined by the address serial number of the node (i.e., node information in a packet header; column 7, lines 60-67; column 10, lines 37-46). Regarding claim 1, it would have been obvious to a person of ordinary skill in the art to include an addressing badge part determined by address serial number of the

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node as taught by Chang et al. in the system disclosed by Harasawa et al. in order to effectively route packets between nodes in a network (Chang et al., column 6, lines 3-19).

Regarding **claim 2**, Harasawa et al. disclose that when the number of nodes in the quantum network is odd, the number of said signal source wavelengths is N, the number of nodes in the quantum network (Harasawa et al. disclose $N = 3$ in Figure 8).

Regarding **claim 3**, Harasawa et al. disclose that the photon signal is a classical optical signal (column 7, lines 25-40).

Regarding **claim 4**, Harasawa et al. disclose a router (Figure 8) in a network which includes N nodes (e.g., nodes A, B, and C) with a star-configuration, wherein N is equal to or larger than 3, the router comprising:

N optical components 41-43, each comprising a mix wavelength interface (i.e., port A of each component 41-43) which is an external interface of the router, and at least N-1 separate wavelength interfaces (i.e., ports B and C of each component 41-43);

wherein every separate wavelength interface transmits different photon signals having different wavelengths, and each of separate wavelength interfaces of different optical components, which transmit the same wavelength signals, are directly coupled to one another so as to route the photon signals with different wavelength transmitted by one node to other nodes by using an addressing badge determined by the wavelength of the photon signal which the node sends (column 7, lines 25-40).

Examiner respectfully notes that the recitation “quantum network” in claim 4 has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or

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the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone.

See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Examiner notes that Applicant's specification (e.g., page 3, line 19) also discloses that "photon signal" such as recited in the claims may comprise a classical optical signal and not a quantum state signal.

Further regarding claim 4, Harasawa et al. do not specifically disclose that the addressing badge further includes another part determined by the address serial number of the node.

However, Chang et al. teach a system that is related to the one described by Harasawa et al. including a network of nodes in a star configuration (Figures 2 and 5). Chang et al. further teach addressing badges including a part determined by the address serial number of the node (i.e., node information in a packet header; column 7, lines 60-67; column 10, lines 37-46). Regarding claim 4, it would have been obvious to a person of ordinary skill in the art to include an addressing badge part determined by address serial number of the node as taught by Chang et al. in the system disclosed by Harasawa et al. in order to effectively route packets between nodes in a network (Chang et al., column 6, lines 3-19).

Regarding **claim 5**, Harasawa et al. discloses that N is odd and separate wavelength interfaces of any two components are different from each other in one wavelength and the total number of wavelengths used in the router is N (Figure 8 shows N = 3).

Regarding **claim 6**, Harasawa et al. disclose that the optical component (i.e. WDM couplers 41-43) is made up of integrated or separate dispersive and accessorial passive optical components (Figure 8; column 7, lines 25-40).

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Regarding **claim 7**, Harasawa et al. disclose that the optical component (i.e. WDM couplers 41-43) is a reversible wavelength division multiplexer (Figure 8; column 7, lines 25-40).

Regarding **claim 8**, Harasawa et al. disclose that the optical connection is achieved via fiber or waveguide (Figure 8; column 7, lines 25-40).

Regarding **claim 9**, as well as the claim may be understood with respect to 35 U.S.C. 112 discussed above, Harasawa et al. disclose that optical connections in the router can add collimating, coupling, or reflecting optical passive components in the optical path to improved the optical capability of the connection (Figure 8)

5. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Harasawa et al.** in view of **Chang et al.** as applied to claim 4 above, and further in view of **Cohen et al.** (US 5,440,416 A).

Regarding **claim 10**, Harasawa et al. in view of Chang et al. describe a system as discussed above with regard to claim 4, including optical coupling components (i.e., WDM couplers 41-43; Harasawa et al., Figure 8) but do not specifically disclose that the components are integrated with waveguide substrate totally or partially. However, various types of optical coupling components are known in the optical communications art. Cohen et al. in particular teach a system that is related to the one described by Harasawa et al. in view of Chang et al. including optical coupling components and further teach integrating them with waveguide substrate (Figure 1; column 2, lines 16-24). Regarding claim 10, it would have been obvious to a person of ordinary skill in the art to integrate the optical coupling components as taught by

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Cohen et al. in the system described by Harasawa et al. in view of Chang et al. in order to build the system using an advantageously compact element.

Response to Arguments

6. Applicant's arguments filed 23 October 2008 with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

7. Also, in response to Applicant's arguments, the recitation "quantum network" in claims 1 and 4 has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Examiner notes that Applicant's specification (e.g., page 3, line 19) and dependent claim 3, also discloses that "photon signal" such as recited in the claims may comprise a classical optical signal and not a quantum state signal.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung, whose telephone number is 571-272-3023.

The examiner can normally be reached on Monday to Friday, 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christina Y. Leung/

Primary Examiner, Art Unit 2613